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We claim:

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1. A method comprising:

a) depositing a multilayer structure on a semiconductor substrate, the multilayer structure including a first layer comprising titanium and in contact with the substrate, a second layer overlying the first layer and comprising an element selected from the group consisting of cobalt, tungsten, tantalum, and molybdenum, and a third layer comprising titanium overlying the second layer, in which the amount of the element does not exceed 20 atomic percent of the total amount of the element and titanium present in the multilayer structure; and

b) annealing the substrate and the structure in a nitrogen-containing atmosphere at about 500°C to about 700°C.

2. The method of claim 1 in which the multilayer structure is about 9 nm to about 170 nm thick.

3. The method of claim 2 in which the amount of the element present in the structure is about 1 to about 10 atomic percent of the total amount of the element and titanium present in the structure.

4. The method of claim 3 in which the structure is about 9 nm to about 20 nm thick and the amount of the element present in the structure is about 3 to about 7 atomic percent of the total amount of the element and titanium present in the structure.

5. The method of claim 4 in which the structure is about 16 nm thick, the amount of the element present in the structure is about 5 atomic percent of the total amount of the element and titanium present in the structure, and the annealing is conducted at about 600°C for about 0.5 to 2 hours.

6. The method of claim 5 in which the element is cobalt.

7. The method of claim 5 in which the element is tungsten.

8. The method of claim 5 in which the element is tantalum.

9. The method of claim 5 in which the element is molybdenum.

10. The method of claim 1 additionally comprising, after step (b), the step (c) of depositing a conductive material on the structure.

11. The method of claim 10 in which the multilayer structure is about 9 nm to about 170 nm thick.

12. The method of claim 11 in which the amount of the element present in the structure is about 1 to about 10 atomic percent of the total amount of the element and titanium present in the structure.

13. The method of claim 12 in which the depositing step is performed using a vacuum deposition technique.

14. The method of claim 10 in which the structure is about 9 nm to about 20 nm thick and the amount of the element present in the structure is about 3 to about 7 atomic percent of the total amount of the element and titanium present in the structure.

15. The method of claim 10 in which the conductive material is tungsten.

16. The method of claim 15 in which the structure is about 9 nm to about 170 nm thick and the amount of the element present in the structure is about 1 to about 10 atomic percent of the total amount of the element and titanium present in the structure.

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17. The method of claim 16 in which the structure is about 5 nm to about 20 nm thick and the amount of the element present in the structure is about 3 to about 7 atomic percent of the total amount of the element and titanium present in the structure.

18. The method of claim 17 in which the structure is about 16 nm thick, the amount of the element present in the structure is about 5 atomic percent of the total amount of the element and titanium present in the structure, and the annealing is conducted at about 600°C for about 0.5 to 2 hours.

19. A contact prepared by the method of claim 10.

20. The contact of claim 19 in which the conductive material is tungsten.

21. The contact of claim 20 in which the multilayer structure is about 9 nm to about 170 nm thick and the amount of the element present in the structure is about 1 to about 10 atomic percent of the total amount of the element and titanium present in the structure.

22. The contact of claim 21 in which the structure is about 16 nm thick; the amount of the element present in the structure is about 5 atomic percent of the total amount of the element and titanium present in the structure; and the annealing is conducted at about 600°C for about 0.5 to 2 hours.

23. The contact of claim 22 in which the element is cobalt.

24. The contact of claim 22 in which the element is tungsten.

25. The contact of claim 22 in which the element is tantalum.

26. The contact of claim 22 in which the element is molybdenum.